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ABSTRACT

This paper considers the discord that may arise in a teacher's thinking when there is a conflict between new technical innovations and the generally accepted aims and culture of teaching itself. Teachers share common ideas about what they do and why it is valuable; there tends to be agreement about what the collectively approved actions of teachers say about important matters in their, and their students', lives. While teachers' thinking and innovation are related (innovation is the remedy of dysfunction and teacher thinking is a way of diagnosing it), innovation introduced from the outside may cause troubling problems for the teacher. The conflict between what is considered "good teaching" and what the innovation demands then surfaces. Such a conflict is illustrated by a description of the introduction of new computer technology into the classroom of an experienced English teacher. A discussion is presented on the philosophical question of the dichotomy between what a teacher considers just or fair for students, and the rewards offered by the bureaucracy for teaching computer literacy. (JD)

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THE CULTURAL CONTEXT OF TEACHER THINKING AND ITS SIGNIFICANCE FOR INNOVATION*

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The Cultural Context of Teacher Thinking and its Significance for Innovation

Talking About Teaching

One of the purposes of studying teacher thinking is to understand the reasons why teachers do what they do. By teacher thinking I mean what teachers talk about when they talk about the practice of teaching. Texts of such talking are subject to analysis of one kind or another by students of teacher thinking who seek to understand them in terms of some more general theory. These analyses presuppose certain ideas about what teaching is and about what value such knowledge could have.

One approach to the improvement of teaching, which seeks to understand teaching scientifically, views the texts (and action itself - a text analogue) as reflections of the practice of communities of teachers who share common goals for the work they do. The nature of the practice is recovered by analysis (and reconciliation) of talk and action in order to understand how teachers deal with the pitfalls and conflicts which they confront in teaching as they attempt to pursue worthwhile goals. The practice itself reflects the history of community ideas about what goals are to be sought through it.

Conversation with teachers giving rise to reflection on practice, "teacher thinking" in other words, is a thinking back

to what has gone on before so as to put into words what was enacted without words. This thinking back, or reflection, serves an important purpose. It allows practice to be studied functionally to see how elements of practice work together to achieve their purpose. The functional analysis exposes the working of practice to evaluation. This reflection is a way of diagnosing practice much like any other diagnostic process and getting teachers to talk about practice is an important part of the process. So is the observation of the practice itself. Teachers speak their mind both in words and in action.

Focusing on a cultural framework as I will in this paper extends the substantial body of work on teacher thinking based on individualistic psychological and epistemological frameworks (see Halkes and Olson, 1984; Ben-Peretz, Bromme, and Halkes, 1986; Clark and Peterson, 1986; Clark, Lowyck and Halkes (in press).)

Practice and Culture

In this paper I propose we look towards understanding the good teacher. I will argue that we should think of teacher folkways as practices involving a complex interrelationship of means and ends rather than simply as unsophisticated means to achieve complex ends (Buchman, 1986). To understand a folkway would mean more than evaluating it in relation to some other more sophisticated or expert "way". Where a practice may falter fundamentally is through failing to be reflective, not through failing to apply rigorous knowledge (Schon, 1983) or to process facts in an expert way.

Buchman (1986) is rightly concerned about the validity of

the folkways of teaching, but I believe that that concern should be directed to failings within specific folkways rather than to the idea that teaching is a folkway, per se. A folkway is really just another way of talking about the practice of a particular group of people - a folk - who share common purposes and meaning. Granted it seems odd to call teaching a folkway, but what else might it be called? It is only by thinking that teaching might be an applied "science", or that there might be experts at it that we find unacceptable the idea of teaching as a traditional, ethically grounded practice which evolves slowly over time which is simply another way of saying it is a folkway.

Folkways are traditions which are passed on to neophyte members through folklore. The neophytes are enculturated not only so as to understand how things are done but to appreciate the underlying classroom order - to know how to express important things (Olson and Eaton, 1987). These folk share a common culture - that is they share common ideas about what they do together means, and why it is valuable.

Professional practices have folkways which express the culture of the practitioner. Teaching is comprised of practices of one kind or another - kindergarten teaching or college preparation are, for example, practices. They have a culture and folkways. When we ask teachers to reflect on teaching, we are asking them to tell us about their culture and their folkways; about what they share in common, what it means and what it is worth.

Teaching has often been studied as an instrumental activity.

Learners learn from teachers who thus are instruments of learning. Teaching is also an expressive activity (Harre, 1979). Teachers say things about themselves, about school subjects and about their relationships to students through instrumental teaching acts.

To say that teaching is an expressive activity is to ask questions about what is expressed and the manner of its expression. It is to wonder about what teaching acts mean both to the teacher and to the student. When we talk about meaning we find ourselves in a public place.

Watch a grade 5 class giving "group reports" to the rest of the class. The report-giving follows a careful sequence of steps and each group goes through the same steps. This is a ritual outsiders witness. Teachers and students participate in a form of being in the classroom which allows each to play a satisfying role allowing for personal 'glory', but minimizing the risk of 'loss of face'. It is an elaborate ritual. It is a public process. It is part of the practice of junior level classrooms.

How do such rituals come to be? What do they mean? What are their important symbols? Such questions bring together the personal and the interpersonal in the interpretation of teaching acts. These interpretations of the public, social process of teaching provides the backdrop against which cognitive analyses can be made (Olson, 1988).

How does one understand another culture? We have to outline the society we are interested in. We have to observe how social life is carried on there. We have to be there. How group reports in a junior level class are made has to be witnessed.

What part do these reports play in the society of junior level classrooms? What is being expressed through the medium of the report about life in junior grades? What are the rules of the report-giving game and what do they signify? What is being said about the purposes of schooling.

What is being said are things common to the community of practitioners. As Taylor (1979) points out:

> Common meanings are the basis of community. Intersubjective meaning gives people a common language to talk about social reality ... but only with common meanings does the common reference world contain significant common action, celebration and feeling. There are objects in the world that everybody shares. This is what makes community .... Common meanings ... fall through the net of mainstream social science (p. 51). [T]hey are not simply a converging set of subjective reactions but part of the common world. What ... mainstream social science lacks is the notion of meaning as not simply for an individual subject .... [T]he very idea of something which is in the common world is totally opaque to empiricist epistemology (p. 53).

While teachers can tell us about their understanding of the culture to which they belong and their capacity to act properly within that culture, outsiders who wish to understand must witness how those forms are enacted. That is the first step. Accounts of teacher perceptions of their practice are a vital, but partial source. They are not privileged. They are at some removed from the way knowledge is acted out. The know-how embedded in that acting is what is crucial, and that know-how reflects what it is that has to be learned in the society of the teacher. In the sub-cultures of teachers there tends to be agreement about what the collectively approved actions say about important matters in their life.

Feiman-Nemser and Floden (1986) note that there are many sub-cultures of teaching, but that not many anthropological studies have been made of them. An interpretive approach to teaching thinking is surely a missing dimension of research on teaching. Anthropological studies attended to the community of teachers, thus providing a context for individually focused psychological and epistemological analysis by attending to public attributes of the culture. As Geertz (1973) says:

> Culture consists of socially established structure of meaning in terms of which people do ... things ... [Culture is not] ... a psychological phenomenon characteristic of some one's mind, personality, cognitive structure or whatever .... What ... most prevents us ... from grasping what people are up to is not ignorance as to how cognition works ... as a lack of familiarity with their imaginative universe within which their acts are signs .... Culture is not a power, something to which social events, behaviours, institutions or processes can be casually attributed, it is a context, something within which they can intelligibly ... described (p. 12).

As Feiman-Nemser and Floden (1986) point out classroom society is, of course, not all of a piece. There are different societies within the school whose culture is constituted by different rituals. For example, the society of teachers who prepare students for university entrance is quite different from the society of teachers who induct children into the primary school. These societies have distinctively different cultures, and those who join them as neophytes are enculturated in quite different ways. There is little doubt that this process of enculturation has a major impact on how neophytes come to teach after a period of time. What makes a neophyte a 'novice' is not only the lack of metacognitive skill, important as that may be (Berliner, 1987), but the partial understanding of the culture of

the school society to which he or she belongs, and how to act correctly in that culture. Culture is the framework without which we cannot make sense of teaching as a practice.

The notion of a practice is a social concept - it has a tradition, is conservative, and changes slowly. It is devoted to certain ideas of what is good for those who belong. Its structure has meaning and ethical dimensions: "This is what we are trying to do and this is what we think is good about it."

The culture of this society is a central factor in determining how new ideas in teaching will fare. Culture lies at the heart of professional induction; it lies at the heart of school reform. This is simply another way of saying that the practices of these various societies are critically important to an understanding of teaching and the process of its change.

To understand the culture of these societies is not to seek for sources of casual reationship but for "a context ... within which [societies] can be intelligibly described .... Understanding a people's culture exposes their normal values without reducing their partiality.... It renders them accessible: setting them in the frame of their own banalities; it dissolves their opacity" (Geertz 1973, p. 14).

Teacher Thinking and Innovation

The study of practice in education ought to be diagnostic. Education is a practical, ethical process concerned about doing good things. The practical point of its study is to assess the fitness of practice and to seek remedy where there is evidence of dysfunction. Teacher thinking and innovation are related:

innovation is the remedy of dysfunction and teacher thinking is the way of diagnosing it.

Talking about dysfunction is to presuppose some idea about what a well functioning practice would be. Usually teachers know what a well functioning practice is because notions of wellness which are built into the sub-culture they share are conserved.

But those who practice do not always achieve the goods the practice sets out to achieve. It is hard to avoid being "seduced" by goods external to the practice. It is the diagnosis of dysfunction that is a crucial task for the student of practice - insider or outsider. Thus it is useful to know where the perils lie - what causes practice to "go off the rails".

MacIntyre (1981) argues that we can understand successful practice in terms of the presence or absence of virtue. Practice can be explained in terms of virtues which sustain valid practice. MacIntyre identifies honesty, courage and justice as essential virtues. These virtues are reference points for explaining what teachers are doing in classrooms. They are a basis for identifying good teachers and are what teachers ought to cultivate if they are to become good practitioners. How do these virtues function in practice?

Good practice can be achieved by:

> [Recognizing] what is due to whom; [taking] self-endangering risks; [listening] carefully to what we are told about our own inadequacies ... in other words we have to accept as necessary components of any practice with internal good and standard of excellence the virtue of justice, courage and honesty .... Every practice requires a certain kind of relationship between those who participate in it (MacIntyre, p. 191).

Practice is never just a set of personal technical skills (craft or expertise). It is a socially based process involving virtues. As MacIntyre suggests:

> By practice I am going to mean any coherent and complex form of socially established co-operative human activity through which goods internal to that form of activity are realized. Practice [provides] the arena in which the virtues are exhibited (p. 187) .... A practice involves standards of excellence and obedience to rules as well as achievement of goods (p. 190).

Practice (praxis) is, of course, not the same thing as craft (technique). Technique is aimed at the production of something, while practice is aimed at the exercise of virtue. In the former the activity is aimed at ends beyond the activity itself while in the latter it is the activity itself which is the end (Aristotle-Nicomachean Ethics: Irwin, 1985). The practice of teaching is not essentially aimed at production of something but at developing and exercizing the virtues of the school group to which teacher and student belong.

Thus we can talk about the practice of middle school teachers and students as a cooperative process whose particular excellences (virtues) the group seeks to develop. On this view what teachers require goes beyond craft knowledge, although craft is associated with teaching but not constitutive of it. Essential to understanding teaching is our understanding of the virtues of thought and character which constitute the practice of the group (students and teachers).

The notion of a practice MacIntyre develops from his analysis of how virtue can be understood. The idea of virtue requires, he says, "a prior account of certain features of social

and moral life in terms of which it [the concept of virtue] has to be defined and explained" (p. 186). A practice provides a context in which talk of virtue makes sense. In order that a practice might exist at all certain virtues must be present. A virtue is:

> An acquired human quality, the possession and exercise of which tends to enable us to achieve those goods which are internal to practices and the lack of which effectively prevents us from achieving any such goods. . . . . Distinctive [of a practice] is the way in which the technical skills are transformed and enriched by these extension of human powers and by that regard for . . . internal goods . . . . Practices never have goods fixed for all time . . . . The goals themselves are transmutted by the history of the activity . . . . [The] very practice has its own history which is more and other than that of improvement of the relevent technical skills (p. 191, 193, 194).

Ends and means exist in a reciprocal relationship in a practice: "[The] exercise of the virtues [in a practice] is a necessary and central part of [it], not a mere preparatory exercise ..." (p. 149).

Innovation as an Institution: Reward in the School Culture

This brings me to consider a particular peril which confronts the practice of teaching: the pursuit of rewards which may offer teachers career recognition and profile in school systems but which may lead to injustices in the classroom and hinder achieving desirable social and academic goals. This peril I want to illustrate in the following analysis of innovation involving information technology.

In a recent study of eight teachers who were using computers in their classrooms (Olson and Eaton, 1987; Olson, 1988) we found that, although the teachers had promised to pursue certain

innovative activities using the microcomputer in their classroom, in no case did they feel that much progress had occurred in achieving promised goals.

Why hadn't these teachers accomplished their goals? They claimed that there was not enough support for them to do what they said they wanted to do, not enough time to preview software, not enough technical support, not enough equipment, a lack of readiness in their students, and a lack of their own knowledge of research procedures. On the face of it the failure to accomplish the innovative goals might be seen as due to a lack of supporting structure--to dysfunction in the innovation process set up by the board. As it turned out that was not enough to make sense of what the teachers said and did.

The teachers might well have anticipated many of the problems that confronted them. For example, they knew they would have limited access to machines and limited time. This leads us to think that perhaps the promised goals were not of the utmost importance. If so what was important? A clue to what was important can be seen in the fact that even though many difficulties were encountered, these teachers wanted to continue doing the same activities under much the same conditions. On the face of it their experience did not justify going on. Why did they want to persist?

Again I think we need to look closely at the culture of these teachers. One can think of them as part of a sub-culture which we might call the "avant garde" teacher. I say this because when we examined their approach to teaching before they had the computers, we found that all were experimenting with

various teaching innovations: simulations in geography; the use of film making in the classroom; analysis of student writing from a linguistics point of view.

By gaining access to a computer, I believe, these teachers obtained a powerful way of impressing their students and parents. But more especially impressing university people, people in other schools involved in new developments, and people at the school board on the look out for centres of innovation in the system. These teachers were encouraged to compete for scarce resources - for system rewards external to their practice. Teachers gain such rewards through the management of impression.

My point is that the very capacity of new technologies to amplify pre-existing practices is their great strength, but a source of their great seductive power as well, because new technologies, being rewards in themselves and keys to further rewards, tempt teachers to pursue ends other than those which give their practice worth. MacIntyre calls such goods "external" to practice. He says:

> It is characteristic of ... external goods that when achieved they are always some individuals property or possession.... [T]he more someone has of them, the less there is for other people. This is sometimes necessarily the case, as with power and fame .... External goods are ... objects of competition. It is characteristic of [internal goods] that their achievement is a good for the whole community who participate in the practice (p. 190-191).

This competitive framework in which the pilot projects were run is not, however, of the teacher's making. It is root and branch part of the bureaucratic institution in which they work. It is this bureaucracy which challenges them to compete for rewards external to the practice of teaching (in this case access

to scarce technologies), and to espouse external goods (the career benefits of computer literacy) when justifying practice.

As MacIntyre suggests:

> Institutions are characteristically and necessarily concerned with what I have called external goods.... They are structured in terms of power and status, and they distribute money, power and status as rewards.... In this context the essential function of virtues is clear. Without them, without justice, courage and truthfulness practice could not resist the corrupting power of institutions" (p. 194).

There is another related level at which the institution erodes practice. The framework of the pilot project application process presupposed that the outcomes of practice would yield hard data useful to the institution - the school board. The framework assumed that technique was at issue, that practice was uniform across school divisions, and that appraisal of the projects was a technical problem. Teachers were thus required to orient their projects to the demands of the institution for hard data, rather than to pursue implications that emerged out of practice itself and to consider the value of the new technology.

Teachers said that this technical-rational (Schon, 1983) approach to change was not what they wanted to do. They knew it was a facade behind which competition for scarce resources was being conducted. But they wrote their project proposals to reflect the institutional orientation, even if only to later abandon the declared project goals after they received the resources they bid for. They did what they had to do to get access to system rewards.

The institution makes it harder for teachers to do what they ought to do - exercise those virtues which enable them to make

practice worthwhile. Had they been encouraged to exercise those virtues, reflection on the experience of microcomputer based teaching which we documented might have been otherwise. How was this so? To answer this question I ask the reader to consider an analysis of one teacher's experience, chosen because it illustrates moral dilemmas of innovation as an institutionalized process (the case is reported at length in Olson, 1988).

What are Computers Good For? A Case in Point. Mrs. Forest uses computers to help her students write better. Her approach is based on student-student conferences and on re-drafting to improve writing. The computer was intended to encourage re-drafting as well as to enhance computer literacy. In her project a selected group of students participate. They have extra time at the computer and extra attention from her:

> I say to [the students]: "How would you like to work on the computer a little more often than perhaps some of the other students? You'll be part of a group of ten kids who are going to work until about March. You will have to write a little bit more but the pay off will be that you will have a little bit more time on the computer and hopefully both of us will learn a little bit about yourself and writing and you will certainly help me. You'll be doing me a big service. None of them wanted to decline...
>
> I want to find out if word processing contributes to better writing. One of the advantages of word processing on the computer is being able to move material around. However, some of the students are hesitant to do so, especially those who are not in the project and those who are not "as quick." They are afriad they don't know how to do it. Access to the machine motivates the students and gives them a sense that they're on their own.

Mrs. Everett's practice has to be understood against the background of how middle school teachers teach language arts and

what counts in that process. Student-student conferencing is not part of conventional practice, neither is the idea of having the teacher look at multiple drafts of writing. Other conventions form the basis of middle school social life. Her practice stands out as avant garde because of the kind of relationship amongst students and between students and teacher she says she is trying to foster.

However, her attempts to do something unconventional is itself conventional - an expectation of the school system that she do unconventional things in order to win a pilot project for her classroom. The school board has conventional ideas about educational research and about change as being research driven. The pilot project format designed by the board, and her subsequent response to it, are entirely conventional approaches to changes in practice through institutional intervention. These conventions (rituals, if you like) are part of bureaucratic life in school systems. These conventions do not encourage critical reflection of practice. They trade on the technical part of practice; they ignore the ethical.

What does the institution (school board) require of Mrs. Everett? She has to convince them she will do something "research-like: in order to gain access to a scarce resource. The competition emphasizes the collection of data about the instrumental efficiency of the microcomputer:

> You know you're looking at slight changes in the group. It will be interesting to see how, not just the superficial types of revisions in terms of spelling corrections or the conventions [change]. You can hopefully try to raise their level of thinking, because they have to conference with two other students at least and then at least once with me.

Mrs. Everett is well placed to compete. She can win an experimental trial with the computer as a research treatment within the framework of a certain theory about how to teach writing. Oddly, given her intention, she does not ask for a printer to be part of her "package", nor two disk drives which would make it much easier for students to use the word processing software.

The trial, however, means that only certain students are given extra attention. How are these students encouraged to participate? Through an appeal to have more time at the computer - not to the possibility of better writing. She believes that the new technology will give the students access to better vocational opportunity. Access to computers will allow students to become more competitive in the job market. Increasing computer literacy is thus how she "sells" her project to her student volunteers. It is how she values the computer:

> Looking back, I think that the students in the project have had the intensive feedback while the rest have increased their "hands-on" computer time. I have learned more about how students revise their work. The students are glad to increase their knowledge of computers with a career in mind.

Only some students will have this benefit. Who are these students? They are volunteers, but they do not include less able students. These volunteers receive extra attention and extra computer time in return for co-operating with her in the pilot project. Mrs. Everett was not sure what she expected to find in student writing as a consequence of using the computer. She found it difficult to read the students work. In fact only some of it is read.

How does Mrs. Everett deal with the justice of the situation? She admitted that she is not distributing her time in a fair way, but that the project justifies this unfairness. Why does the project justify it? It is not clear. The question of justice remains unresolved. These are difficult questions we are asking Mrs. Everett to consider here, and they are brought upon her not only because of the way life is lead in the school system but because teachers are often asked to do the impossible - pursue many and sometimes conflicting good things for their studenus. We shall return to this point later.

Sally, whose disappointment with the print-out of a geometric poem was palpable, did not engage Mrs. Everett's sympathies. Sally must struggle on on her own, she said, because this is one way that she will become a better person. But Sally, a student with learning difficulties, on the face of it deserved extra attention as much as the project students did. Why not accord to Sally what the other students were given? These basic matters of fair play were not part of what Mrs. Everett was encouraged to assess within the framework of the pilot project approach she was caught up in.

Similarly Mark, who wanted to keep his work private, was treated as a rogue. But privacy is an important issue in the use of microcomputers. Why does she find it strange that Mark might want to keep his work private?

When Mrs. Everett reflects on these students experience of microcomputers, she returns to the computer literacy argument - computer experience is good for careers. This is the comventional view about computers in the school system and

beyond. Yet she doubts the value of computers as an aid to writing and she does worry about the fairness. Even so, she wants to continue the same activity next year, and by extending her pilot project and thus her access to the computer in her room. Given the problems with the computer, it is odd that she would want to repeat the experience. It is not so odd, if by continuing to maintain that what she is doing is an experiment, she can retain the computer in her room, which is what the system essentially is offering her. This ensures her continuing access to a scarce resource.

Thinking Critically About Practice

Let us review the story so far to develop the idea of thick and critically thinking as basis for better practice (innovation). The school board believes that parents want their children to have access to computers because jobs depend on computer literacy. The school board has only so many computers to place in classrooms, so a competition is held in which scarce resources are made available to computer oriented teachers. The teachers we talked to, including Mrs. Everett, believe that computer literacy is needed for career enhancement. Thus computers go to those who share the idea that schooling involves the pursuit of external goods.

But what about the values inherent in their practice itself? How are these to be developed through the use of new technologies. What encourages critical thought about practice? The seductive aspects of the technology must be recognized. They ought not be the object of competition; nor should their supposed

power to enhance career be uncritically accepted.

An honest look at the potential of new forms of practice is needed - so is an honest look at the institutionalization of innovation itself. An honest look at what is worthwhile in school practice is needed and at how school systems can undermine the virtues of practice. We are all involved in this problem - Mrs. Everett and her school board are not alone. The responsibility for worthwhile practice in schools falls to teachers who have to maintain an uneasy relationship with school bureaucracies. It is a complex and demanding task. It is something teachers need to think about. It is something we all need to consider critically.

Some might take exception to my analysis. They might say why shouldn't teachers give some students access to experiences from which they are best able to profit? Was Mrs. Everett wrong in what she did? Perhaps not. Perhaps she was trying to do the best for her students as a whole this way. Unfortunately there are not enough computers. Unfortunately all students are not equally able to profit. Some selection has to take place. Thus she has to make difficult choices, and she made them. But she did not see her situation as one of conflict, of wanting to do the best for everyone but being unable to. She didn't see the dilemma she was in, how by doing something for some she wasn't able to do it for others.

What teachers can gain from critical analysis of practice is insight into their condition as teachers - an essentially conflicted condition. As MacIntyre suggests we ought "not to ask of a social institution what end or purposes does it serve, but

rather of what conflict is it the scene? ... it is through conflict and sometimes only through conflict that we learn what our ends and purposes are " (p. 163, 1964).

This is the reason why it is valuable to reflect on practice and to emmend it when necessary. This is why teachers have to become alert to the ways in which the institutions of schooling can undermine their own practice. What teachers do and what school systems do are uneasily related. The great mistake is to think otherwise. This is why it is important to understand practice as part of the culture of schooling as an institutional process -- a culture torn between the goods of practice itself and those outside it. Thinking critically about those conflicts is a way towards improving practice itself and towards achieving a valid institution in which practice can improve. This approach to teacher thinking aids us in development of effective schools through justified innovation. This is the link between research on teacher thinking and the process of innovation made.